

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Claim 1 (Canceled)

Claim 2 (Previously Presented): The ball spline according to Claim 6, characterized in that, regarding the pair of rows of balls rolling on the ball rolling faces situated on both sides of each land part, the intersection of contact normals of the rows of balls with respect to the ball rolling faces is situated on the outer side of the line connecting the centers of these rows of balls with respect to the radial direction of the spline shaft.

Claim 3 - 5 (Canceled)

Claim 6 (Currently Amended): A ball spline comprising:

a spline shaft having a substantially circular sectional configuration, and having in the outer peripheral surface thereof a plurality of lines of longitudinally extending arcuate torque transmission grooves arranged at equal intervals, with the ball rolling faces being formed on side surfaces of land parts situated in between the torque transmission grooves, such that the ball rolling faces are on both sides in the width direction of each torque transmission groove; and

a spline nut formed substantially as a cylinder with a hollow hole into which the spline shaft is fitted, having on an inner peripheral surface of the hollow hole a plurality of lines of load

rolling faces which are adjacent in the circumferential direction opposed to the ball rolling faces of the spline shaft;

a large number of balls rolling while receiving a load in the load region formed whereby the ball rolling faces of the spline shaft and the load rolling faces of the spline nut are opposed to each other; and

the distance between a pair of rows of balls rolling on the ball rolling faces situated on both sides of each of the land parts is set larger than the distance between a pair of rows of balls rolling on the ball rolling faces on both sides of each of the torque transmission grooves,

the spline nut has the ball return passages which are formed parallel to the load regions, and are situated in the contact normals n of the balls and the ball rolling faces,

the spline nut has first ball retaining portions, formed of synthetic resin, which are protruded from the inner peripheral surface of the spline nut,

each of the first ball retaining portions is accommodated in the torque transmission groove, and is disposed between a pair of rows of balls rolling on the ball rolling faces on both sides of each of the torque transmission grooves.

Claim 7 (Previously Presented): The ball spline according to claim 6, the groove walls on both sides in the width direction of each torque transmission groove are substantially perpendicular to the outer peripheral surface of the spline shaft, and at these positions, there are formed the ball rolling faces.

Claim 8 (Previously Presented): The ball spline according to claim 6, the contact normals of the balls with respect to each ball rolling face of the spline shaft are set substantially perpendicular to the radial direction of the spline shaft.

Claim 9 (Previously Presented): The ball spline according to claim 6, wherein the spline nut has second ball retaining portions, formed of synthetic resin, the second ball retaining portions formed into part of the inner peripheral surface of the spline nut,

the first ball retaining portion and the second ball retaining portion are disposed on both sides of the load rolling faces of the spline nut.

Claim 10 (Previously Presented): The ball spline according to claim 9, wherein the spline nut has an endless circulation path for circulating balls, and the balls arranged in a row on a coupling belt formed of a flexible synthetic resin to be inserted into the endless circulation path together with the coupling belt,

guide grooves for guiding the coupling belt are axially formed in the first ball retaining portions and the second ball retaining portions.

Claim 11 (New): The ball spline according to claim 6,
the spline nut is equipped with an endless circulation path for the balls rolling on the load rolling faces; and

a pair of endless circulation paths situated on both sides of each torque transmission groove of the spline shaft cross each other so that one endless circulation path passes through an inside of another endless circulation path.